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ABSTRACT

To determine common training requirements of secondary-level vocational teachers, a factor analysis was made of responses by 40 randomly selected vocational teachers representing four states: Pennsylvania, Iowa, North Carolina, and New Jersey. Teacher responses consisted of the assignment of ratings to 40 items on a Likert-type scale. Ten teachers were selected from each of the 4 states with two teachers representing each of five disciplines: vocational agriculture, home economics, trade and industry, distributive education, and business education. The verimax rotation method of factor analysis extracted a total of 14 vectors in which one or more of the 40 variables showed a factor loading of .50 or greater. One implication of such commonalities within the five disciplines is a possibility for a common core of training experience within broadly based vocational teacher education curriculums. The Vocational Education Training Needs Instrument, which was used in this study, and Sedgwick's Teacher Model are appended. (CH)

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COMPETENCIES OF VOCATIONAL TEACHERS

A FACTOR ANALYSIS OF THE TRAINING NEEDS OF TEACHERS OF OCCUPATIONAL EDUCATION

A Study Conducted in Cooperation With the
Department of Statistics
Oregon State University

E. Wayne Courtney and Harold H. Halfin

August, 1969

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CHAPTER I

Introduction to the Study

I. STATEMENT OF THE PROBLEM

The central problem of this study was to determine the common training needs and requirements for teachers of vocational education. Respondents for the study represented secondary level teachers of vocational agriculture, trade and industry, home economics, business, and distributive education. In all, four states were arbitrarily selected and cooperated in the study. The problem involved the following major premises:

1. the development of a common training needs instrument.
2. the factor analysis of data to determine the common proficiency needs of teachers of vocational subjects.
3. the formulation of implications for curriculum activities and teacher training.

II. DIRECTION OF THE STUDY

The primary literature impinging upon the present problem is that which has been reviewed in a previous report (Courtney, 1968) and which established the rationale for the present study. Thus, an elaborate review of literature is not here included and readers are referred to the above reference for such a presentation.

For the present study, the major interest was directed toward determining the common training requirements of secondary level vocational teachers. The bulk of the research up to this time has been directed toward the establishment of various teacher models (e.g., Sedgwick, 1966) which aligned themselves to various occupational patterns. The plan for the present study was to factor

analyze the responses of forty randomly selected vocational teachers representing a geographic region encompassing four states; namely, Pennsylvania, Iowa, North Carolina, and New Jersey. Proficiency scores were obtained from the respondents using a Vocational Education Training Needs Instrument which was developed and validated along the lines of Sedgwick's Teacher Model.

The present research resolves into a problem with teacher education curriculum ramifications. The knowledge of the proficiency needs of teachers in the field, along with a factor-based grouping of job activities, is important to designers of curricula in vocational education. The study brings some of these elements into a quantitative focus.

Commonality of Content

The suggested basis for curriculum planning in occupational education programs is to search for a common core of training experiences which will lead to the development of competent teachers of vocational subjects. Using the centripetal approach (cf. Courtney and Coster, 1963), curriculum planning is centered on identifying the elements of the common core. The elements are likely to resemble fragments of abilities or knowledges and are apt to be general rather than specialized except as specialization may relate to the entire field of vocational education. This approach may appeal to educators who see the need for cooperative training programs of teacher education.

A summary of the literature validates this approach as the theoretical framework under which this problem may be studied. According to this premise, the following resumes may be used as guiding principles in the organization of an empirically-based procedure for determining vocational teacher curricula content.

1. Factor identification may be accomplished using as a base an occupational groups classification system. Such identifications reveal areas of differentiation among workers.

2. Job requirement components provide for large spectrum analysis descriptions of worker (teacher) populations. Through such descriptions, components of training program preparation needs may be studied.

3. Subject matter content may be descriptively grouped for analysis purposes. From such groupings, patterns of training may be established for workers in vocational teaching so that the basic common elements and necessary common experiences among training programs can be identified.

As content is identified, behavioral objectives associated with the curricula for training teachers of occupational subjects can be specified. Using the sequences of behavioral objectives, instructional strategies may then be identified for the training programs of occupational teachers.

Desirable Changes

If we are to speculate that the teacher of occupational subjects is going to be able to organize and direct programs for training people to enter the world of work, we will expect that he should be capable of:

1. directing learning experiences within a democratic society.

2. understanding and applying the basic principles underlying occupational preparation.

3. operating within a specialty area of work.

In accord with these capabilities, the characteristics of the trained teacher should include (1) flexibility, (2) adaptability, and (3) a thorough grounding in learning theory, sociology of education, and the processes of people's interest in work.

From the results of previous work and based upon an expressed need for research in education, it would appear that there should be developed a quantitative basis for making judgments on content to be included in vocational

teacher training programs. Further, it would seem that vocational teacher education should be looked at in terms of the three basic blocks of training content shown below:

I.	II.	III.
Professional Training and Field Experience	Technical Content	Liberal Arts Content

Under this arrangement, the principal thrust for future training emphasis would be toward the development of a teacher of vocational subjects who is occupationally oriented. From the viewpoint of teacher educators, it would be valuable to know the qualities and the parameters inherent for the basic blocks of content here presented.

The central issue is the development of a model for vocational teacher education which will indicate the content of professional training needs for teachers of occupational subjects. The basic thesis surrounding this issue is that a standard set of dimensions should be developed which will give guidance to content selection in the training of vocational teachers.

The Research Model

The theoretical construct of this approach may be translated into an appropriate set of objectives which reveal the nature of the problem's description. In analyzing the various factors related to the needed research, the following objectives are given:

1. To determine the content of professional education needs for teachers of vocational subjects.

2. To determine the competency levels required for the professional education needs of teachers of vocational subjects.

3. To extract the common core of subject matter for professional educational needs and training elements being studied in order to terminally develop a listing of common professional education training needs for teachers of vocational education.

Hence, the questions to be answered as a result of this line of inquiry include the following:

1. What are the professional education training elements needed in the field by teachers of vocational subjects?

2. What are the common professional training needs for teachers of vocational subjects?

3. What competency levels are necessary for teachers in the field for the subject items considered by the study? What is the importance level for each component studied?

4. Is there any indication of grouping for the training elements being studied?

The present approach, concerned with identifying and analyzing the common core of experiences among vocational training programs, features the identification of populations, the selection of a stratified-random sample of respondents, the construction of a data-collecting instrument, and the analysis of the collected data using appropriate analytical comparisons. The specific procedures for the approach are outlined below:

A. General Design

The general design is patterned after the studies outlined previously for related curriculum and teacher training needs. Modifications from these design patterns have been initiated to include the following:

1. The population for the study may be drawn from vocational teachers representing the following disciplines:

   a. Trade and Industrial Education

b. Business Education

c. Home Economics Education

d. Vocational Agriculture Education

e. Distributive Education

Data may be collected from teachers who represent each discipline.

2. In studying commonalities among vocational training programs, a factor analysis treatment may be employed.

This step in the research is considered as one of the most important aspects of the proposed research and is expected to provide data answering questions relating to the central issues of the investigation. The principal objective of this step was to identify items which fall under the factors resulting from the analysis, with the resultant items comprising scales which describe the factors upon which the items load.

CHAPTER II

The Design

I. THE DEPENDENT VARIABLE

The dependent variable in the study was a score judgmentally assigned by teachers of occupational education to denote their feelings about the necessity for various knowledges and skills in their work. A total of forty items were included in the study* with the assignment of ratings being based upon the following Libert-type scale;

1. My job requires no proficiency with this activity.
2. My job requires slight proficiency with this activity.
3. My job requires moderate proficiency with this activity.
4. My job requires considerable proficiency with this activity.
5. My job requires complete proficiency with this activity.

II. THE EXPERIMENTAL DESIGN

The basic design for the study was a factor analysis design in which a verimax rotation was used. Because the capacity of the available computer was limited, only a 40 x 40 matrix was generated which utilized forty respondents and forty items. The forty respondents represented teachers who were randomly chosen from each of five vocational disciplines. The forty items which were used represented the first forty items included in a 130 item instrument.

Within each of the four states a total of ten vocational teachers were chosen as respondents. Two teachers were used for each of five disciplines

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*See Appendix for a copy of the instrument

(i.e., vocational agriculture, home economics, trade and industry, distributive, and business education.) Populations were identified through lists which were obtained from the various State Directors' offices. The locations of the states used in the study are shown in Figure 1.

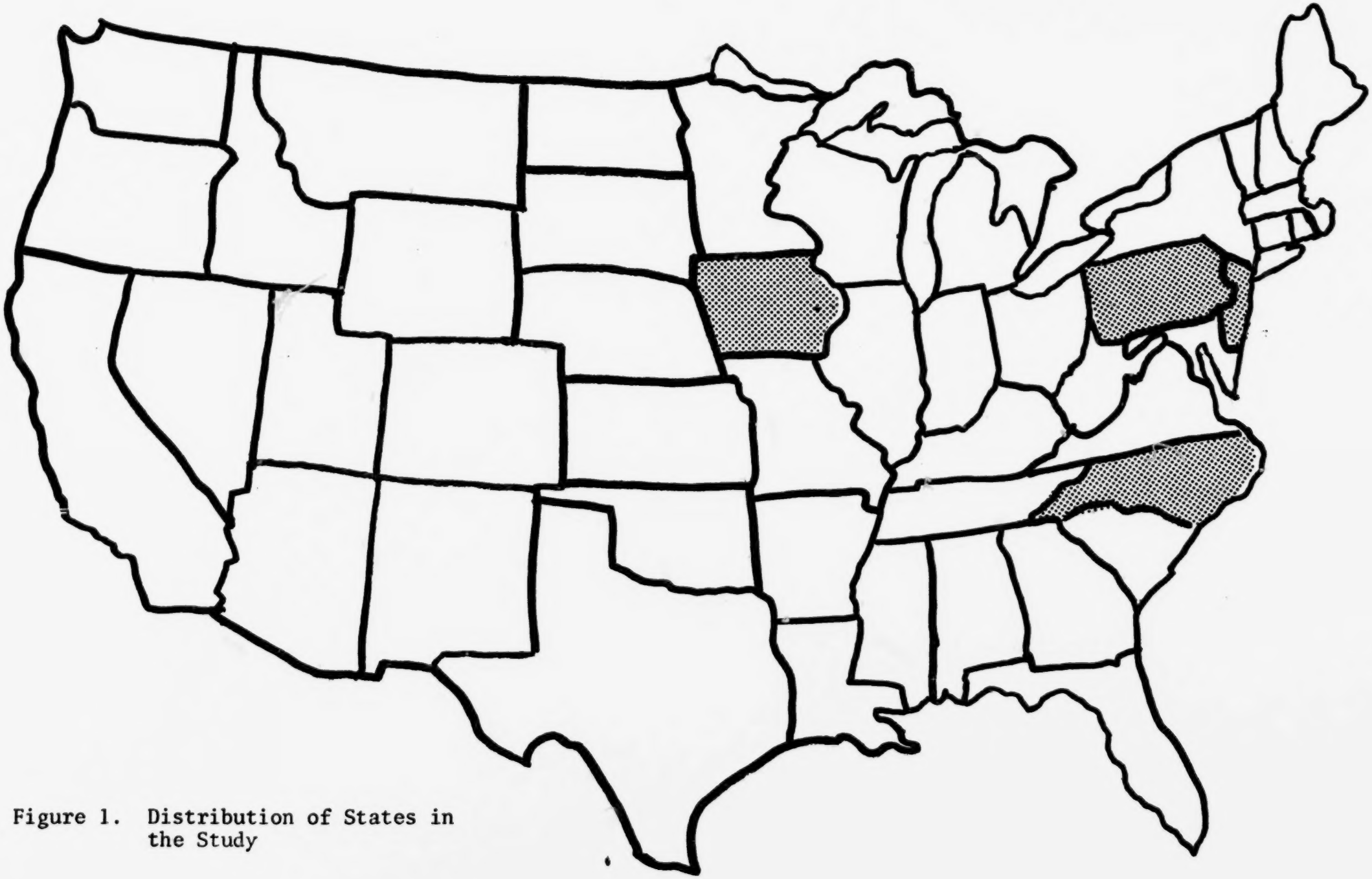

Figure 1. Distribution of States in the Study

The data for the study were collected through mailed instruments with respondents being asked to judmentally assign scores to each of the items included in the study.*

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* The data used in this study were collected by Professor Harold Halfin, Director of Vocational Education, The Graduate College, Stout State University.

CHAPTER III

The Results

The verimax rotation method of factor analysis extracted a total of fourteen vectors (groups) in which one or more of the forty variables (items) showed a factor leading of .50 or greater. In all, thirty-one of the forty items were accounted for in the factor loadings. The vectors, along with the mean scores for each item, based on a five-point scale value, are shown in Table I.

TABLE I

Groupings of Thirty-one Items and Mean Scores
According to Factor Loadings

Mean	Factor Loading	Item Number	Item Description
	Vector (Group) I:		
4.250	-0.74363	17.	Use the existing local school administration system to initiate and maintain the vocational program.
4.050	-0.81330	21.	Relate technological advances to laboratory instruction.
4.225	-0.70185	31.	Select appropriate visual materials for instructional purposes.
4.350	-0.69022	33.	Conduct periodic up-dating of the course of study in accord with recent occupational trends.
4.375	-0.65106	37.	Select instructional materials for the classroom.
	Vector (Group) II:		
4.550	.82753	30.	Maintain discipline in the shop or laboratory.
4.425	.54938	36.	Understand the role of the school in providing vocational preparation for the student.
4.525	.66955	39.	Motivate the student in the classroom.
	Vector (Group) III:		
3.625	.77362	9.	Make use of the innovative provisions of the Vocational Act of 1963.
3.350	.71542	11.	Utilize your background in general of liberal studies to advantage while participating in community activities.
3.800	.63841	22.	Understand state teacher certification requirements.
3.550	.79818	40.	Understand the legal provisions of teacher liability.
	Vector (Group) IV:		
3.575	-0.58297	32.	Interpret the results of vocational interest inventories.
3.525	-0.80882	35.	Interpret statements of ethics as set forth by your professional organizations.
	Vector (Group) V:		
4.575	-0.88760	6.	Use questions during classroom presentations to aid student learning.
4.550	-0.89398	10.	Use questions during demonstrations to aid student learning.
4.500	-0.76731	16.	Provide appropriate practice for classroom learning experience.

TABLE I (cont.)

	Vector (Group) VI:		
4.725	-0.78134	14.	Understand the goals of vocational education.
4.300	-0.75734	15.	Understand the goals of general education.
4,425	-0.51326	36.	Understand the role of the school in providing vocational preparation for the student.
	Vector (Group) VII;		
2.550	-0.52813	18.	Use sociograms.
3.500	.62900	26.	Secure appropriate on-the-job training positions for students.
	Vector (Group) VIII:		
3.425	.60452	7.	Use formalized criteria in the selection of textbooks.
3.625	.64269	23.	Aid in the development of the total school program.
	Vector (Group) IX:		
3.425	.66115	19.	Aid the student in obtaining work placement after training.
	Vector (Group) X:		
2.575	.73414	25.	Locate available standardized tests.
	Vector (Group) XI:		
4.225	-0.65350	38.	Develop objective tests to measure achievement.
	Vector (Group) XII:		
3.275	.65979	20.	Understand the history of vocational education.
	Vector (Group) XIII:		
4,325	-0.53804	12.	Purchase appropriate equipment and supplies for instructional purposes.
3.625	-0.77045	29.	Obtain the cooperation of available communications media personnel.
	Vector (Group) XIV:		
4.775	.63011	3.	Make a shop or laboratory demonstration meaningful to the individual student.

CHAPTER IV

The Conclusions and Implications

The present study was designed to identify the common training needs of teachers of vocational education using a factor analysis method of research. Based on the results of the study, the following conclusions and implications were drawn:

1. The factor analysis of forty items indicated that items tended to cluster into common groupings which related to one another. Such groupings logically formulate the basis for organizing instructional programs for the training of vocational teachers.

2. The commonalities found within the five disciplines tended to verify the thought that several elements within the various training programs may logically be offered in a common training effort. Hence, the need for proliferating courses to accommodate the instruction within the various disciplines seems both undesirable and unnecessary. Thus, the five items which clustered under Vector I could be offered to the training programs of all of the types of vocational teachers included in the study in a common course of instruction.

3. The means of the items which loaded above .50 tended to be high, indicating that they were regarded as being necessary to the vocational teacher's job in the field.* Thus, they should be included in the curricula of programs which train vocational teachers.

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*A tabulation of means and standard deviations by item is found in the Appendix.

4. Because some thirty-one of the forty items studied loaded on independent vectors, it would appear that the factor analysis method is appropriate for developing such groupings. In like respect, had all 130 items which were included in the instrument been subjected to a factor analysis, it seems appropriate to conclude that the resulting vectors would logically formulate a valid base for a common curriculum for professional training in vocational education. Each resulting vector would then contain the content for course development.

5. Due to inadequate funding, the present study was limited in scope to the 40 x 40 item matrix. Had additional funds been available, the study would have been broadened. Such an analysis as is here suggested is critically needed for curriculum planning.

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APPENDIXES

Tabulation of Means and Standard Deviations

Item Number	Mean	Standard Deviation
1	2.975	.999
2	2.550	1.259
3	4.775	.479
4	3.275	.905
5	3.700	1.264
6	4.575	.747
7	3.425	1.174
8	3.950	1.218
9	3.625	1.254
10	4.550	.854
11	3.350	1.026
12	4.325	.916
13	4.100	.871
14	4.725	.452
15	4.300	.686
16	4.500	.816
17	4.250	1.006
18	2.550	1.299
19	3.425	1.174
20	3.275	1.037
21	4.050	.985
22	3.800	1.042
23	3.625	.978
24	3.275	1.413
25	2.575	1.152
26	3.500	1.358
27	3.775	1.073
28	4.200	.911
29	3.625	1.233
30	4.550	.782
31	4.225	1.049
32	3.575	1.195
33	4.350	.921
34	3.950	.985
35	3.525	1.085
36	4.425	.675
37	4.375	.837
38	4.225	.861
39	4.525	.640
40	3.550	1.108

VOCATIONAL EDUCATION TRAINING NEEDS STUDY INSTRUMENT

DIRECTIONS: Following is a list of proficiency items related to training needs and requirements for teachers of vocational education. For each statement (item) please circle the rating (1 2 3 4 5) which best indicates YOUR FEELING about the necessity for the knowledge or skill with regard to YOUR JOB. The following key should be used for the assignment of the ratings:

1. My job requires no proficiency with this activity.
2. My job requires slight proficiency with this activity.
3. My job requires a moderated proficiency with this activity.
4. My job requires considerable proficiency with this activity.
5. My job requires complete proficiency with this activity.

Do not take too much time in thinking about any particular item. Please do not leave out any item -- there are no right or wrong answers. We are primarily concerned with how YOU FEEL about the training requirements for vocational education teachers.

Here is an example:

1. develop objective tests to measure achievement 1 2 3 4 (5)

This person, in marking the "5" rating, felt that his job required complete proficiency with this activity.

Put a circle around the answer which comes closest to representing your feeling. Even if your exact feeling is not found in one of the choices, pick the one which comes closest to your true feeling. Sometimes it will be difficult to make up your mind, but do the best you can and do not leave out any items.

TEACHER EDUCATION INSTRUMENT

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficiency	complete proficiency
1. participate in the direction of non-vocational extra-curricular activities	1	2	3	4	5
2. interpret the provisions of teacher tenure laws	1	2	3	4	5
3. make a shop or laboratory demonstration meaningful to the individual student	1	2	3	4	5
4. involve yourself in civic community activities not related to the school	1	2	3	4	5
5. promote and maintain adult vocational programs	1	2	3	4	5
6. use questions during classroom presentations to aid student learning	1	2	3	4	5
7. use formalized criteria in the selection of textbooks	1	2	3	4	5
8. adapt your physical appearance to acceptable standards of the school	1	2	3	4	5
9. make use of the innovative provisions of the Vocational Act of 1963	1	2	3	4	5
10. use questions during demonstrations to aid student learning	1	2	3	4	5
11. utilize your background in general or liberal studies to advantage while participating in community activities	1	2	3	4	5
12. purchase appropriate equipment and supplies for instructional purposes	1	2	3	4	5
13. arrange for and conduct field trips	1	2	3	4	5
14. understand the goals of vocational education	1	2	3	4	5
15. understand the goals of general education	1	2	3	4	5
16. provide appropriate practice for classroom learning experience	1	2	3	4	5
17. use the existing local school administration system to initiate and maintain the vocational program	1	2	3	4	5

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficienc	complete proficiency
18. use sociograms	1	2	3	4	5
19. aid the student in obtaining work placement after training	1	2	3	4	5
20. understand the history of vocational education	1	2	3	4	5
21. relate technological advances to laboratory instruction	1	2	3	4	5
22. understand state teacher certification requirements	1	2	3	4	5
23. aid in the development of the total school program	1	2	3	4	5
24. make use of school budget-keeping procedures	1	2	3	4	5
25. locate available standardized tests	1	2	3	4	5
26. secure appropriate on-the-job training positions for students	1	2	3	4	5
27. know the special state requirements for vocational facilities	1	2	3	4	5
28. develop visual materials for instructional purposes	1	2	3	4	5
29. obtain the cooperation of available communications media personnel	1	2	3	4	5
30. maintain discipline in the shop or laboratory	1	2	3	4	5
31. select appropriate visual materials for instructional purposes	1	2	3	4	5
32. interpret the results of vocational interest inventories	1	2	3	4	5
33. conduct periodic up-dating of the course of study in accord with recent occupational trends	1	2	3	4	5
34. make use of school student record keeping procedures	1	2	3	4	5
35. interpret statements of ethics as set forth by your professional organizations	1	2	3	4	5
36. understand the role of the school in providing vocational preparation for the student	1	2	3	4	5
37. select instructional materials for the classroom	1	2	3	4	5

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficienc	complete proficiency
38. develop objective tests to measure achievement	1	2	3	4	5
39. motivate the student in the classroom	1	2	3	4	5
40. understand the legal provisions of teacher liability	1	2	3	4	5
41. direct the student's participation in competitive events related to vocational education	1	2	3	4	5
42. understand the student informal social groups	1	2	3	4	5
43. make use of the provisions of the Smith-Hughes, George-Deen, and George-Barden Acts	1	2	3	4	5
44. relate the daily lesson plan to the course of study	1	2	3	4	5
45. interpret the vocational program to administrators	1	2	3	4	5
46. provide special education training for the mentally handicapped	1	2	3	4	5
47. make use of the State Plan for Guidance in securing reimbursement for vocational programs	1	2	3	4	5
48. take the initiative when dealing with administrators	1	2	3	4	5
49. organize local vocational advisory committees	1	2	3	4	5
50. understand the history of education	1	2	3	4	5
51. use non-directive counseling techniques to help students solve personal and social problems	1	2	3	4	5
52. build a display	1	2	3	4	5
53. interpret your own educational philosophy	1	2	3	4	5
54. make use of the State Plan for curriculum guides	1	2	3	4	5
55. draw from personal avocational interests to enrich instruction	1	2	3	4	5
56. understand the similarities and differences between the goals of general and vocational education	1	2	3	4	5
57. use the results of standardized tests for instructional purposes	1	2	3	4	5

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficiency	complete proficiency
58. make a classroom lesson meaningful to the individual student	1	2	3	4	5
59. maintain anecdotal records as a part of the student's cumulative folder	1	2	3	4	5
60. provide appropriate practice for skill learning experiences	1	2	3	4	5
61. select standardized tests to measure achievement	1	2	3	4	5
62. relate the vocational instruction program to other areas of the curriculum	1	2	3	4	5
63. interpret the vocational program to other teachers	1	2	3	4	5
64. break down an occupation or job into its component parts for guidance purposes	1	2	3	4	5
65. develop appropriate course objectives	1	2	3	4	5
66. conduct community surveys for purposes of improving instruction	1	2	3	4	5
67. use the information contained in professional journals for personal improvement purposes	1	2	3	4	5
68. develop related instruction sheets	1	2	3	4	5
69. assess the validity of teacher-made tests	1	2	3	4	5
70. maintain a clean, orderly laboratory or classroom	1	2	3	4	5
71. select appropriate audio materials for instructional purposes	1	2	3	4	5
72. produce and use resource units	1	2	3	4	5
73. control your desire to work at a faster pace when dealing with students	1	2	3	4	5
74. utilize prescribed shop, classroom, and laboratory equipment organizational plans.	1	2	3	4	5
75. maintain attention during the presentation of demonstrations	1	2	3	4	5
76. provide special education training for the physically handicapped	1	2	3	4	5
77. make a daily lesson plan	1	2	3	4	5

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficier	complete proficiency
78. assess the reliability of teacher-made tests	1	2	3	4	5
79. know the special state requirements for vocational shops and laboratories	1	2	3	4	5
80. understand similarities and differences between two or more educational philosophies	1	2	3	4	5
81. assess the difficulty of teacher-made tests	1	2	3	4	5
82. maintain necessary report forms required by state agencies	1	2	3	4	5
83. interpret the "norming" data associated with standaridized tests	1	2	3	4	5
84. use anecdotal records for informational purposes	1	2	3	4	5
85. interpret the vocational program to parents	1	2	3	4	5
86. change your teaching style (i.e., teacher-centered to student-centered) during a classroom lesson	1	2	3	4	5
87. use progress charts	1	2	3	4	5
88. conform to local standards of dress and appearance for teachers	1	2	3	4	5
89. interpret the vocational program to the community	1	2	3	4	5
90. review a demonstration	1	2	3	4	5
91. use the results of standardized tests for job placement	1	2	3	4	5
92. utilize the services of state and local agencies responsible for vocational education	1	2	3	4	5
93. use the services of local vocational advisory committees	1	2	3	4	5
94. use directive counseling techniques to help students solve personal and social problems	1	2	3	4	5
95. summarize the classroom lesson	1	2	3	4	5
96. take responsibilities for leadership in civic community activities	1	2	3	4	5

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficie	complete proficiency
97. aid the student in entering educational training programs at the post high school level	1	2	3	4	5
98. break down an occupation or job into its component parts for instructional purposes	1	2	3	4	5
99. develop performance tests to measure achievement	1	2	3	4	5
100. maintain attention during the presentation of classroom lessons	1	2	3	4	5
101. maintain discipline in the classroom	1	2	3	4	5
102. understand the history of industrial and agricultural development	1	2	3	4	5
103. interpret the vocational program to students	1	2	3	4	5
104. lead a conference	1	2	3	4	5
105. motivate the student in the shop or laboratory	1	2	3	4	5
106. develop job sheets to aid instruction	1	2	3	4	5
107. develop audio materials for instructional purposes	1	2	3	4	5
108. take the initiative when dealing with other teachers	1	2	3	4	5
109. develop subjective tests to measure achievement	1	2	3	4	5
110. select instructional materials for the shop or laboratory	1	2	3	4	5
111. evaluate your subject matter teaching performance compared to college grades obtained in that subject	1	2	3	4	5
112. relate current events to classroom instruction	1	2	3	4	5
113. provide specific information to individual students concerning the nature and requirements of occupations	1	2	3	4	5
114. understand the social class structure of the local community as it relates to students enrolled in vocational classes	1	2	3	4	5
115. conform to acceptable community social behaviors for teachers	1	2	3	4	5
116. control your desire to work at a faster pace when dealing with people in the community	1	2	3	4	5

What proficiency must you have in your work as a teacher in the ability to:	no proficiency	slight proficiency	moderate proficiency	considerable proficienc	complete proficiency
117. understand the reasons for compulsory school attendance laws	1	2	3	4	5
118. use the information contained in professional journals for the improvement of instruction	1	2	3	4	5
119. understand the similarities and differences between vocational and technical education	1	2	3	4	5
120. change your teaching style (i.e., teacher-centered to student-centered) during a demonstration	1	2	3	4	5
121. provide specific information to groups of students concerning the nature and requirements of occupations	1	2	3	4	5
122. operate duplicating equipment	1	2	3	4	5
123. make use of the guidance and counseling services which are available to the school	1	2	3	4	5
124. interpret local school policies	1	2	3	4	5
125. provide special education training for the gifted	1	2	3	4	5
126. make use of programmed learning materials	1	2	3	4	5
127. develop articles for news releases	1	2	3	4	5
128. be stimulating in your work as a teacher	1	2	3	4	5
129. conduct follow-up studies for purposes of determing the effectiveness of instruction	1	2	3	4	5
130. evaluate teaching effectiveness through student achievement	1	2	3	4	5

TEACHER MODEL

AMERICAN INDUSTRY PROJECT
STOUT STATE UNIVERSITY
MENOMONIE , WISCONSIN
USOE CONTRACT NO. OE-5-85-060

TEACHER MODEL

A Model to Guide Curriculum Development For the American Industry Project*

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Menomonie, Wisconsin

by

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Teacher Model

One phase of the American Industry Project is the development of a pilot teacher education program for teachers of American Industry. To enable the Project to carry out this development, it seemed logical to determine what the end product, or teacher, should be like and then build a curriculum which seemed likely to succeed in developing the sort of teacher desired.

Since there was not an adequate precedent for the type of teacher we wanted to prepare, some sort of decisions had to be made about the kind of teacher needed before development of a curriculum could proceed. Thus, it became necessary to build a teacher model, or guide, for the development of a curriculum.

The teacher model was not conceived of as an original development, nor was it intended to project a stereotype model teacher. It is a structuring of available information into a form which provides guidance for curriculum development. The model is flexible and intended to provide for change as additional data is brought into it.

Two sources were used for the collection of our data: A review of literature and interviews.

The data were sorted into four cells.

1.1 Modifiable - supported by opinion.

1.2 Modifiable (under typical classroom conditions) - supported by data.

2.1 Non-modifiable - supported by opinion.

2.2 Non-modifiable (under typical classroom conditions) - supported by data

	Supported by opinion 1	Supported by data 2
Modifiable 1		
Not Modifiable 2		

In many cases different instruments were used in several studies relating to a given point of view. This raised the question of whether the several instruments were, in fact, getting at the same thing.

The question was resolved as well as possible by analyzing the instruments involved and the inferences drawn from it. If the instruments and inference were consistent, then the dimension they represented was accepted in an appropriate cell.

In the general sense, three types of criteria were found to have been used in the data which was collected; student gain, rater evaluation, and logical argument. The first two criteria were considered as offering support to a dimension through empirical data; the last, logical argument, was considered as offering support through opinion. Precedence of validity was given to these three criteria in the following order: 1) student gain, 2) rater evaluation, and 3) logical argument.

Where the collected data were not consistent, precedence was given to data representing the above criteria, in the order given. In each such case, attention was given to the design of the study, the appropriateness of the conclusions, and the appropriateness of the statistics used. Consideration was also given to the relevance of the logical argument. As these conflicts of internal consistency were resolved in favor of a given point of view, it

was taken as a teacher dimension, supported by empirical data or opinion, depending upon the outcome of the resolution. If there was no agreement or if the weight of evidence did not substantially support one point of view, then the dimension was not included, or it may have been included as supported only by opinion if there was considerable body of consistent opinion and only a little research. A dimension may be included on the basis of support by opinion alone.

Within both classifications, supported by opinion and supported by empirical data, there was a classification by modifiability. That is, modifiable or not modifiable.

Modifiable implied that the dimension was one which might be attacked directly with some hope of success by some typical educational processes directly under the control of a teacher within the university. Knowledge of subject matter is a dimension of this classification.

Not modifiable implied those teacher dimensions which may not be predictably affected by the direct actions of a teacher under typical conditions. The various personality characteristics are dimensions of this classification.

This illustration shows the model with a few of the dimensions in place.

	Supported by opinion 1	Supported by data 2
	1	2
Modifiable 1	1.1.1 Has consistent philosophy 1.1.3 Relates to school and community 1.1.8 Acceptable personal appearance	1.2.2 Can establish set 1.2.3 Uses appropriate forms of reference 1.2.10 Has broad cultural interests 1.2.13 Knows his subject
Not Modifiable 2	2.1.1 Acceptable physical appearance 2.1.2 Acceptable societal model	2.2.2 Is flexible 2.2.4 Good intelligence 2.2.5 Energetic

This classification system permits both a rational classification of existing information and facilitates the storage and retrieval of new information by cell code, number, and letter subscripts. If new data supports or rejects a given dimension, this may be recorded on the classification by a + or -. This permits the revision of teacher dimensions as additional data becomes available. This is an on-going procedure. Dimensions may be added, eliminated, or relocated with ease. Because of the limited amount of data available concerning some of the dimensions, their present location may be rather tentative.

In the following pages, the classification of the teacher dimension is indicated at the left on each page. At the right of each demension number is the descrption of the dimension. The reference to research or opinion supporting its classification is below the description. In the case of some dimensions, consensus was arrived at locally; in these cases there is no reference below the description of the dimension. In all cases, the references given describe or clarify the dimension. They do not represent all of the data available for that dimension.

CELL 1.1

(Consensus - Modifiable)

1.1.1

Has Consistnent Philosophy

This dimension implies that a teacher, as a person, ought to have a constructive code of ethics and a philosophy.

Reference: Haskew, 1956, P. 199

1.1.2

Involves Self in Schoolwide Activities as Appropriate

This dimension implies that a teacher should "provide professional leadership in extracurricular class activities which are an important part of the learning environment of the school."

Reference: Peters, Burnett, and Farwell, 1963, P. 55

1.1.3

Relates School to Community

This dimension implies that the school may use both the human (parents, policemen, doctors) and physical (newspaper offices, fire house) resources of the community.

Reference: Hansen, 1957, P. 308-312
Holman, P. 183

1.1.3.1

Has support with industry in the community (local consensus)

1.1.4

Relates Curriculum to Society

This dimension implies that "the school itself shall be made a genuine form of active community life, instead of a place set apart in which to learn lessons."

Reference: Dworkin, 1959, P. 39, 45.

1.1.5

Involves Self in Community or Supra Community Activities as Appropriate

This dimension implies that a teacher, as a citizen of a community, has certain obligations, such as voting.

Reference: Peters, Burnett, and Farwell, 1963, P. 65.

1.1.6

Perceptive of Change

Reference: Public Schools of Baltimore County, 1953, P. 266

1.1.7

Perceptive of World About Him

This dimension may imply an "understanding of the physical world and man's relation to it."

Reference: Haskew, 1956, P. 199

1.1.8

Has Acceptable Appearance

This statement refers to such things as one's clothes and hair style which should be neat and fairly conservative.

Reference: Badley and Keith, 1924, P. 319
Holliday, 1952, P. 10
Wynn, 1960, P. 232

1.1.9

Can Conduct Action Research

"The teacher has a definite obligation to engage in research.... The curiosity of man and especially pupils can be enhanced by research about them and with them."

Reference: Peters, Burnett, and Farwell, 1963, P. 361

1.1.10

Can Aid in Vocational Guidance

Reference: Peters, Burnett, and Farwell, 1963, P. 52.

1.1.11

Knows School Finance and Administration Procedure and School Law

Reference: Armstrong, 1952, P. 15
Metropolitan School Study Council, 1950, P. 14, 18.

1.1.12

Knows Social Structure of the Community

This dimension implies a "familiarity with the social and institutional structure of the community, the forces at work there and the relationships between the school and the community."

Reference: Haskew, 1956, P. 201
Metropolitan School Study Council, 1950, P. 13.

1.1.13

Broad Background in Liberal and General Studies

This dimension implies that such a backgroundis necessary to prepare individuals to deal intelligently with the problems arising from living in a democratic society.

Reference: Gould and Yoakam, 1954, P. 4, 33-34

1.1.14
Committed to Life of Learning

(Local Consensus)

1.1.15
Effective Written Communication

This dimension implies that as an educated person, a teacher must have skill in written communication.

Reference: Haskew, 1956, P. 199.

1.1.16
Can Teach at all Conceptual Levels

(Local Consensus)

1.1.17
Good Housekeeper

This dimension implies that the ordinary classroom, and especially an industrial arts classroom, should be neat. Students must also be taught how to care for equipment and materials.

Reference: Selvidge and Fryklund, 1930, P. 41
Butler, 1939, P. 303.

CELL 1.2

(Supported by data -- modifiable)

Dimension No. Description

1.2.1

Can change from an authoritarian to non-authoritarian teaching mode as necessary.

Reference: Biddle, Ellena, P. 219-220
Gage, Handbook of Research on Teaching, 1963, P. 427, 429

1.2.2

Establishing Set

The term set refers to the establishment of cognitive rapport between pupils and teacher to obtain immediate involvement in the lesson. Experience indicates a direct relationship between the effectiveness in establishing set and effectiveness in the total lesson. If the teacher succeeds in creating a positive set, the likelihood of pupil involvement in the lesson will be enhanced. For example, one technique for inducing positive set is through the use of analogies that have characteristics similar to the concept, principle, or central theme of the lesson. By training interns in set induction procedures and having them apply these procedures in micro-teaching sessions, their subsequent classroom teaching is significantly improved.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.3

Establishing Appropriate Frames of Reference

A student's understanding of the materials of a lesson can be increased if it is organized and taught from several appropriate points of view. A single frame of reference provides a structure through which the student can gain an understanding of the materials. The use of several frames of reference deepens and broadens the general field of understanding more completely than is possible with only one. For example, the Emancipation Proclamation becomes more meaningful to the student when it is understood from the frames of reference of the Northern White abolitionist, the Southern White, the Negro slave in the seceded South, the free Negro, the European clothing manufacturer, the political leaders of England, and as an example of the reserved powers of the American President, than if it is simply discussed as the document issued by Lincoln which freed the slaves.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.4

Achieving Closure

Closure is complementary to set induction. Closure is attained when the major purposes, principles, and constructs of a lesson, or portion of a lesson, are judged to have been learned so that the student can relate new knowledge to past knowledge. It is more than a quick summary of the ground covered in a lesson. In addition to pulling together the major points and acting as a cognitive link between past knowledge and new knowledge, closure provides the pupil with a needed feeling of achievement. Closure is not limited to the completion of a lesson. It is also needed at specific points within the lessons so that pupils may know where they are and where they are going.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.5

Using Questions Effectively

The ability to ask provocative, answerable, and appropriate questions, and thus to involve pupils actively, is one of the critical skills in teaching . . .(Novice teachers tend to ask questions which are either so general as to be vague and impossible to answer satisfactorily or so specific that they require a one-word "fill-in" response, which tends to kill further responses). . .helps to build proficiency in preparing and using questions; factual, conceptual thought-provoking, discussion-stimulating, heuristic questions.

Reference: Bush and Allen,1964, Allen and Fortune, 1964.

1.2.6

Recognizing and Obtaining Attending Behavior

The successful experienced teacher, through visual cues, quickly notes indications of interest or boredom, comprehension or bewilderment. Facial expressions, directions or the eyes, and tilt of the head, and bodily posture offer commonly recurrent cues which make it possible for the skilled teacher to evaluate his classroom performance according to the pupil's reactions. He can then change his "pace," vary the activity, introduce new instructional strategies as necessary, and improve the quality of his teaching.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964

1.2.7

Control of Participation

Control of pupils' participation is one important variable in the successful learning for the pupils . . .Teachers develop different techniques for encouraging or discouraging classroom interaction and to gain insight into the casual relationship between a series of teacher-pupil interactions. When a teacher develops the skill to analyze and to control the use of his accepting and rejecting remarks, his positive and negative reactions, his patterns of reward and punishment, he has taken a major step toward effective teaching.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964

1.2.8
Providing Feedback

The feedback process . . . may be simply stated as providing "knowledge of results." Teachers often ignore the availability of information accessible during the lesson. Questioning, visual cues, informal examination of performance, are immediate sources of feedback. Teachers can develop appropriate techniques to elicit feedback from students to modify their lesson accordingly. Teachers unconsciously tap a variety of feedback sources but unless they are sensitized, they tend to rely unevenly on a limited number of students as "indicators" and to rely on a restricted range of feedback cues.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.9
Employing Rewards and Punishments (Reinforcement)

Reinforcing desired pupil behavior through the use of reward and punishment is an integral part of the teacher's role as director of classroom learning. Substantial psychological evidence confirms the value of reinforcement in the learning process. The acquisition of knowledge of specific techniques of reward and punishment and the development of skill in using them appropriately in specific situations is most important.

Reference: Bush and Allen, 1964, Allen and Fortune, 1964.

1.2.10
Has Broad Cultural Interests

This dimension implies interest and participation in the arts, music, painting, reading and literary matters.

Reference: Ryans, 1960, P. 360
Biddle, Ellena, 1964, P. 91

1.2.11
Stimulating, Imaginative

Reference: Biddle, Ellena, 1964, P. 91
Ryans, 1960, P. 389

1.2.12
Professionally Oriented

This dimension is often evaluated by raters. This usually refers to professional activity and knowledge, leadership and activity in oral professional organizations, and attitudes toward the profession.

Reference: Barr, 1961, P. 97-98

1.2.13
Knows His Subject

This dimension is often evaluated in terms of college grades obtained, and/or ratings of one sort or another.

Reference: Biddle, Ellena, 1964, P. 219-220
Barr, 1961, P. 69, 97-98

CELL 2.1

(Consensus -- Non-modifiable)

2.1.1

Acceptable Physical Appearance

Students often react strongly to the appearance of a teacher. It can be an asset or a liability. Does the teacher have characteristics that are likely to be drawbacks to his acceptance; too thin, too fat, unusual facial contours, large hands or feet?

Reference: Garrett, 1964, P. 14

2.2.2

Acceptable Societal Model

This dimension implies that a teacher must be a good example, a model for his pupils. This responsibility makes a teacher continually conscious of the impact of his behavior on his students.

Reference: Chandler, 1961, P. 231
Gould and Yoakam, 1954 P. 5

CELL 2.2

(Supported by data -- Non-Modifiable)

2.2.1
Open-minded

As the belief and disbelief system becomes closed, the isolation between and within the belief and the disbelief system increases. As closedness increases, there will be less differentiation of disbelief subsystems with respect to each other -- different disbelief subsystems will be perceived as the same. It is assumed that to the degree that the systems become closed, the content of such beliefs holds that we live alone, helpless, friendless, with an uncertain future; that the self is unworthy and inadequate, and that the way to overcome such feelings is by self-aggradizing, self-righteous identification with a cause and concern for power and status.

The more closed the system the more authority will be seen as absolute and people will be accepted and reputed because they agree or disagree with our belief-disbelief system.

The more one will rely upon authoritarian dictates to determine beliefs, the higher will be our tendency to avoid contact with facts, events, etc., incongruent with one's belief-disbelief system.

Reference: Rokeach, 1960, P. 73-80
Gage, 1963, P. 547-548

2.2.2
Flexible

"Perservation effects are not necessarily associated with any morbid process or with any particular character trait . . . If a person has the intellectual capacity for appreciating the consequences of his own determing tendencies and persists toward his goals despite blockage or deviation, we say that he is determined. When there is a lack of elasticity and adaptiveness with respect to other inhibiting and facilitating factors, determination becomes inflexibility." (Landes, Bolles, 1950, P. 507).

. . . to the extend that a person is said to be characteristically rigid (inflexible) his analytic thinking should suffer . . . He cannot break down or overcome beliefs when they are no longer appropriate, in order to replace them with more appropriate ones . . . Person high in rigidity should have greater difficulty in the analytic phase of problem solving than those persons low in rigidity. (Rokeach, 1960, P. 183, 185.)

Reference: Biddle, Elena, 1964, P. 95.
Barr, 1961, P. 97-98

2.2.3
High MMPI K Scale

The MMPI K Scale seems to measure such traits as:

References: Gage, 1963, P. 540-541
Biddle, Ellena, 1964, P. 87
Barr, 1961, P. 97-98

2.2.3.1 Responsible
2.2.3.2 Controlled (Gage, 1963, P. 424)
2.2.3.3 Conscientious
2.2.3.4 Good interpersonal performance
2.2.3.5 Strong ego (Gage, 1963, P. 424)
2.2.3.6 Friendly (Gage, 1963,P. 547-48)(Ryans, 1960, P. 389)
2.2.3.7 Adapts to needs of others
2.2.3.8 Conforming

Collectively, many of these attributes seem similar to the:

2.2.3.9 Warm helping attitude identified by some other devices

References: Gage, 1963, P. 547-48, 477
Barr, 1961, P. 97-98
Ryans, 1960, P. 389

2.2.4
Has Good Intelligence

In the sense that intelligence is used here it refers only to academic performance and is usually evaluated in terms of grade point averages, ACT scores, or similar devices. "Good" generally is relative i.e. "A" grades are "better" than "C" grades or high ACT scores are "better" than relatively lower ones.

Reference: Barr, 1961, P. 69, 81.

2.2.5
Energetic

This dimension is characterized by a liking for a rapid pace rather than a slow, deliberate one -- quickness of action, production, and efficiency.

Reference: Gage, 1963, P. 548-549
Barr, 1961, P. 97-98, 86

2.2.6
Has initiative

References: Gage, 1963, P. 547-48
Barr, 1961, P. 69

2.2.7
Has Participated in School-like Activities

This dimension includes such activities as playing school as a child, reading to younger children, youth camp counseling and similar activities.

Reference: Barr, 1961, P. 17
Biddle, Ellena, 1964, P. 81

2.2.8
Highly Verbal

This dimension refers to the ability to call up many ideas in a situation relatively free from restriction.

Reference: Guilford, 1959, P. 382.
Knoll, 1956
Coombs, 1965, P. 102

2.2.9
Dominant

This dimension indicates a tendency to control the situation.

Reference: Hughes, 1959
Barr, 1961, P. 97-98
Gage, 1963, P. 547-548

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